

## 5.6. High Efficiency Sweepers

### 5.6.1. Schwarze Sweeper

#### General Description

The Schwarze Sweeper EV-Series machines use no water during the sweeping process. Although capable of sweeping in wet conditions, the small-micron pickup capability is due to their dry pickup process. Instead of suppressing dust by using water sprays, EV-series sweepers utilize a patented dry airflow and pickup system. The patented debris-collection head on Schwarze EV-series machines combines dual counter-rotating brooms with approximately 15,000 cubic feet per meter of air movement. The cleaning system removes dust and debris from the pores of concrete, while still picking up large debris.



The EV-Series sweepers come in two models, the EV1 and a smaller version EV2. Both models have contour-following, opposed-rotating transverse brooms, enclosed in a vacuum head. These are fed by outrigger curb brooms, mounted ahead of the vehicle body, which remove debris from the surface and entrain it in the air stream. A fan pulls ambient air from the surface through a head and into the containment section where it is pulverized and compacted. The air is pulled through 2.5-micron media filters. The cabs of both models are equipped with closed circuit TV monitors to allow a constant view to the rear of the sweeper. In addition, the cabs are pressurized to offer continuously filtered air to the operator.

- EV1: Rear Steering unit  
108" cleaning path  
7.2 million ft<sup>3</sup> of air filtered in an 8-hour period
- EV2: Four-wheel steering unit  
80" cleaning path  
5.6 million ft<sup>3</sup> of air filtered in an 8-hour period  
Able to be used inside buildings, parking garages, and other structures

In addition to the EV-Series sweepers, Schwarze Industries, Inc. offers the A-Series of regenerative air sweepers, which can also be used to remove fine particles.

#### Site Considerations

The EV-Series sweepers are designed to pick up particles as small as 2.5 micron to reduce potential particle content in stormwater runoff. They have been designed for various types of pavement cleaning including:

- Work in oil refineries
- Construction sites
- Landfills
- Public roadways & Parking areas

## Installation

No pretreatment is necessary for the Schwarze Sweeper EV-Series, however, the sweepers may be used as a stormwater pretreatment in conjunction with other BMPs.

## Maintenance

As with any piece of power equipment, it is recommended by the manufacturer that a regularly scheduled maintenance plan be followed for the Schwarze Sweeper. It is suggested that a qualified mechanic be used to maintain and service sweepers. Schwarze Industries' supplies recommended maintenance schedules for their equipment.

## Costs

The average cost of the EV1 sweeper is \$225,000 and the EV2 sweeper is \$185,000.

## Performance and Verification Ranking

Verification Ranking: 

Independent testing has shown that the dry cleaning approach allows EV-series machines to collect and contain 99.6% of small micron particulates. The EV-series sweepers have the capacity to filter up to 1 million cubic feet of air per hour to 2.5 microns. Currently testing is being carried out or planned through collaboration with a variety of government agencies.

Studies:

- *Effectiveness of Envirowhirl Technology*. Roger Bannerman, Wisconsin Department of Natural Resources.
- *Filtration Capability Test Report*. Russell Fondaw, Industrial Testing Laboratories, Inc. 1994.
- *Street Sweeper Pick-up Performance*. Roger Sutherland, Pacific Water Resources.

## Contact

No existing New Hampshire installations to date. For contact information of Schwarze Sweepers outside of New Hampshire and for updates please contact Schwarze Industries, Inc.

## Manufacturer

Company: Schwarze Industries, Inc.  
 Address: 1055 Jordan Rd.  
 Huntsville, AL 35811  
 Telephone: (800) 879-7933  
 Fax: (256) 851-1105  
 Email: support@schwarze.com  
 Website: www.schwarze.com

### 5.6.1. TYMCO® Regenerative Air Sweeper

#### General Description

The TYMCO Regenerative Air Sweeper uses a controlled blast of air to dislodge debris from the surface path. All debris picked up by the pick-up head is directed up the 14-inch diameter suction hose and into the hopper. The pick-up head is 87 inches wide and can be extended to 133 inches. Because of the regenerative air system, clean air is returned to the blower to start the process again, reducing the amount of air exhausted back into the environment and the amount of particle resettling.



#### Site Considerations

TYMCO sweepers remove trash, dirt and fine particulates. They are designed for use without water, however, they are able to operate in rainy or wet conditions and can adjust to road curvatures and irregularities. They have been designed for various types of pavement cleaning including:

- Parking areas
- Roadways
- Construction sites

Tymco Sweepers are also able to clean the following if equipped with the auxiliary hand hose:

- Catch basins
- Around landscaping & fence lines

#### Installation

No pretreatment is necessary for the TYMCO sweeper; however, the sweeper may be used as a stormwater pretreatment in conjunction with other stormwater BMPs.

#### Maintenance

As with any piece of power equipment, it is recommended by the manufacturer that a regularly scheduled maintenance plan be followed for the TYMCO sweeper. It is suggested that a qualified mechanic be used to maintain and service the sweepers. TYMCO provides Operator Training and Safety videos as well as Operator and Mechanic Service Training Schools at no tuition cost at the TYMCO headquarters in Waco, TX.

#### Cost

The average costs of the TYMCO Sweeper models can be seen below in Table 5.18.

Table 5.18. Average cost of TYMCO sweepers by model.

Model	Storage Capacity (cubic yards)	Average Price
600	6	\$125,000
435	4	\$85,000
210	2	\$60,000
Dustless 600	6	\$175,000

## Performance and Verification Ranking

Verification Ranking: ●●●●

The following testing and review has been conducted on the effectiveness of the TYMCO Sweepers:  
Studies:

- *Road Surface Silt Loading Test Results*: TYMCO Model 600 Dustless System Sweeper. Val Cassaday, Ortech. 16 February 1998.
- *Measurement of Street Sweeper Collection and PM10 Generation Final Report*. CE-CERT (College of Engineering-Center for Environmental Research and Technology). Riverside, CA.
- *Certification Request Review*. Alene Taber, South Coast Air Quality Management District. Diamond Bar, CA. 14 September 1999.

## Contact

For contact information of TYMCO Sweepers for updates please contact TYMCO. The following is a list of TYMCO sweeper locations:

Manchester, NH Airport	Town of Somersworth, NH	Town of Gilford, NH
Manchester, NH REDI-MIX	Pease Airport, NH	MassPort, Boston, MA
City of Haverhill, MA	Town of Nahant, MA	USAF, worldwide

## Manufacturer

Company:	TYMCO Regenerative Air Sweepers	
Mail Address:	PO Box 2368 Waco, TX 76703-2368	Street Address: 225 Industrial East Waco, TX 76705
Telephone:	(800) 258-9626	
Website:	www.tymco.com	
Contact:	Bobby Johnson	
NH Contact:	Rick Schults, Sales Representative Casey Equipment & Rental Corp.	
Mail Address:	PO Box 309 Kingston, NH 03848	Street Address: 351 Route 125 Brentwood, NH 03833
Telephone:	(603) 679-9977	
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